vessel, and to alter their lines so as to satisfy the conditions of stability and slow rolling to any required extent.

2. "Observations on 287 Thunder-storms made at Highfield House, near Nottingham, during the last nine years." By Edward Lowe, Esq., F.R.A.S. Communicated by John Lee, Esq., LL.D., F.R.S. &c.

The thunder-storms referred to in this communication are recorded in a tabular form, arranged according to their dates. In this table are given the date; the hour of the commencement of the storm; the mean height of the barometer to tenths of an inch; whether it is rising, stationary, or falling; the direction of the wind before the storm, during its continuance, and after its cessation; the maximum temperature on the day of the storm and on the day after; the minimum temperature on the night before and on the night after; and general remarks on the storms. This table is followed by remarks on particular storms recorded in it. In conclusion the author gives the results of his observations with reference to the number of storms in each year; the number in each month, with the hours at which they mostly occur in particular months; the number that have occurred with a rising, stationary, or falling barometer; the number in respect to the direction of the wind and of the current in which the storms moved; the number of storms that have occurred at the various heights of the maximum, and also of the minimum thermometer; the number in which the peculiar breeze that suddenly springs up on the commencement of thunder-storms has been well marked; the change in the direction of some of these storms, and indications of rotatory motion; and finally, the different atmospheric phenomena which have accompanied these storms.

3. "On a Dorsal dermal Spine of the Hylæosaurus recently discovered in the Strata of Tilgate Forest." By Gideon Algernon Mantell, Esq., LL.D., F.R.S. &c.

In the first discovered specimen of the remains of the fossil reptile named Hylæosaurus by the author, there were associated with the recognizable parts of the skeleton a series of thin, long angular processes, six or seven of which extended in a line nearly parallel with the upper part of the vertebral column: these bones are from four to seventeen inches in length. There are also several imbedded in various parts of the same block of stone; and in another specimen of this reptile, consisting of a considerable portion of the distal part of the vertebral column, similar angular bones are associated with the spine. The true nature of these processes, from their great size and osseous character, was deemed very problematical: Dr. Mantell, in his original memoir in 1832, regarded them as dorsal dermal spines that had formed a serrated crest which extended along the back of the Hylæosaurus, in the same manner as the horny dermal fringe in many species of Iguana, Cyclura, &c. Professor Owen, in his reports on British fossil reptiles, expressed his dissent from this opinion, and considered it more probable that the bones in question were abdominal ribs.

In a memoir on the Iguanodon and Hylæosaurus (Phil. Trans. 1849), Dr. Mantell states that he had been able to obtain slices of one of these spines for microscopical examination, and that their internal structure was identical with that of the acknowledged dermal scutes of the same reptile. Still the true form of the articulating surface of the base of these spines was unknown, every specimen being imperfect in this respect. At length, after the lapse of eighteen years, Dr. Mantell obtained, through the liberality of Mr. Peter Fuller of Lewes, from the very quarry in which the original specimen of Hylæosaurus was found, the spine figured and described in this communication, in which the base is sufficiently entire to show that the mode of implantation in the skin was identical with that of the true dermal scutes; thus confirming the author's original interpretation of these remarkable appendages having constituted a serrated crest along the back of the Hylæosaurus. The specimens, and the microscopical sections, were exhibited to the Society.

4. "On the Variations of the Sulphates and Phosphates in the Urine in Disease." By Henry Bence Jones, M.D., F.R.S.

The object of the paper is to show whether the sulphates in the urine are increased or diminished in any class of diseases. The corresponding variations of the phosphates were determined. The particular conclusions may be thus stated:—

1. In three cases of acute chorea the most remarkable increase was observed in the amount of sulphates in the urine. In the same cases the quantity of urea was very much increased. The quantity of urine made in twenty-four hours was not excessively diminished, and the total amount of earthy and alkaline phosphates was below the average amount, sometimes remarkably less than in health.

2. In delirium tremens and in other delirium a remarkable increase in the amount of sulphates in the urine was frequently observed, and the total amount of phosphates was in the same cases occasionally remarkably diminished; and the resemblance to the state of chorea was still closer, inasmuch as occasionally a very great excess of urea was found in these cases also.

3. In acute inflammatory affections of the nervous structures, during the most febrile symptoms, an increase was observed in the amount of sulphates in the urine; and the total amount of earthy and alkaline phosphates in these diseases was increased in the same proportion as the sulphates were increased.

4. In some slight and chronic diseases of the nervous structures no increase in the amount of sulphates in the urine was observed, excepting when sulphate of magnesia had been taken.

5. In acute diseases, in which neither the nervous nor the muscular structures were chiefly affected, no increase in the sulphates or phosphates was observed, except after sulphate of magnesia.

6. In chronic diseases, in which neither the nervous nor the muscular structures were chiefly affected, no decided increase in the sulphates or phosphates in the urine was observed, except after sulphate of magnesia. One case of exostosis may be regarded as a doubtful exception to this statement.